

sample by said plasma and which does not peel off during etching of the sample.

32. 30. (amended) A plasma etching apparatus according to claim 29, wherein the thickness of the coating layer is about 200 microns.

31. A plasma etching apparatus according to claim 27, wherein the heat exchanging medium is a refrigerant.

REMARKS

The Examiner is thanked for the renumbering of claims as claims 29-31, noting that renumbered claims 29 and 30 have been amended by the present amendment.

At the outset, it is noted that due to time constraints, applicants were unable to schedule an interview with the Examiner prior to submitting this amendment, and applicants request that the Examiner, upon taking up this amendment for action, contact the undersigned attorney to schedule an interview if the amendment is not considered to place this application in condition for allowance.

By the present amendment, it appears that the term as utilized in the claims of "exchangeable" jacket has not been given proper consideration by the Examiner, which may be due to the recitation of a heat exchanging medium which is

circulated through the interior of the exchangeable jacket. Applicants note that the term "exchangeable" jacket as utilized in the specification of this application, refers to a replaceable jacket 103 which is removable from the side wall of the etching chamber and is replaceable in the etching chamber and which is held inside of a side wall of this etching chamber and serves for protecting the side wall of the etching chamber. Thus, by the present amendment, to avoid confusion with regard to the "exchangeable" jacket and the heat "exchanging" medium, the claims have been amended to utilize terminology of a "replaceable" jacket which is removable from the etching chamber. Applicants submit that such terminology does not raise any new issues requiring further search and/or consideration. It is further noted that the lack of consideration of the term "exchangeable" jacket may have been due to the Examiner's absence from the interview conducted July 20, 2001, in connection with this application, where the invention was fully described.

Also, by the present amendment, the features of the dependent claims have been clarified since applicants submit that proper consideration to such features have not been given, as will be discussed below and the specification has been corrected.

The rejection of claims 22-31 under 35 U.S.C. 103(a) as being unpatentable over Goto et al, 5,843,277 in view of

Shamouillian et al, EP 0 648 858 A1 and the rejection of claims 22-31 under 35 U.S.C. 103(a) as being unpatentable over Collins et al, 5,556,501 in view of Shamouillian et al, EP 0 648 858 A1, such rejections are traversed insofar as they are applicable to the present claims, and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 U.S.C. §103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under §103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, (Fed. Cir. 00-1158, 1/18/02)

wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge". The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion.

Turning to Goto et al, while the Examiner contends that Goto et al shows a plasma etching apparatus including an etching chamber 105 having a side wall, and an exchangeable jacket which is held inside the side wall, applicants submit that Goto et al does not disclose such recited feature. More particularly, Fig. 1 of Goto et al only discloses a chamber with side walls, noting that col. 4, lines 49-60, describe a system 100 having a low-pressure chamber 105 having inner walls. Irrespective of the position by the Examiner, Goto et

al does not disclose or teach an "exchangeable" jacket which is held inside the side wall of the etching chamber when considered in conjunction with the specification of this application, as previously claimed, and does not disclose a "replaceable" jacket which is held inside the side wall of the etching chamber and which is removable from the side wall of the etching chamber, as described in the specification of this application. Furthermore, while the Examiner refers to col. 8, lines 20-36 of Goto et al and Fig. 1 as disclosing a temperature controller which circulates a heat exchanging medium through the interior of the jacket, applicants note that col. 8, lines 20-26, indicates that additional temperature control means are provided about the walls of the chamber 105 for controlling the temperatures of the inner surface of these chamber walls. Col. 8, lines 23-26 of Goto et al, provide that:

The additional temperature control means (not shown may be in the form of electric heaters and/or heat exchange water jackets buried in the chamber walls between their inner and outer surfaces. (emphasis added)

Applicants submit that a heat exchange water jacket buried in the chamber wall between the inner and outer surface thereof represents a temperature control of the side wall of the chamber and Goto et al provides no disclosure or teaching of an exchangeable jacket or replaceable jacket which is held inside of the side wall so as to form a wall surface of the

etching chamber, as recited in claim 21, for example.

Applicants note that the side wall of the etching chamber and the exchangeable jacket or replaceable jacket are separate elements from one another, wherein the exchangeable or replaceable jacket is held inside of the side wall of the etching chamber as recited in independent claims 21 and 26. Thus, applicants submit that independent claims 21 and 26 patentably distinguish over Goto et al in the sense of 35 U.S.C. 103, since Goto et al does not provide any disclosure of an exchangeable or replaceable jacket which is held inside of a side wall of the chamber and serves for protecting the side wall of the etching chamber.

The Examiner indicates that Goto et al does not expressly disclose that the temperature controller controls the temperature of the jacket as to enable depositing of the coating layer on the surface of the jacket during etching, and applicants submit that such is a mischaracterization of what Goto et al does not disclose. That is, since Goto et al does not disclose an exchangeable or replaceable jacket, Goto et al cannot possibly disclose controlling of the temperature of the jacket nor does Goto et al disclose depositing of a coating layer on the surface of the jacket during etching, since Goto et al does not provide the claimed structure. The Examiner, in a hindsight reconstruction attempt of the present invention ignores the lack of disclosure of Goto et al, and refers to

Shamouillian et al which discloses a plasma etching apparatus in which, during etching of a substrate, the chamber walls are maintained at a temperature and film deposited in the chamber walls covers and entraps any free-floating particulate etch by-products being formed in the wall. Irrespective of the disclosure of Shamouillian et al, any film deposited, in accordance with Shamouillian et al, is deposited on the side wall of the etching chamber and not on an exchangeable or replaceable jacket. Moreover, in accordance with Shamouillian et al, the film serves to entrap contaminates and does not serve for preventing the surface of the exchangeable or replaceable jacket being etched by the plasma during etching, as recited in independent claims 21 and 26. Accordingly, it is apparent that the combination fails to provide the claimed features as set forth in claims 21 and 26 and the dependent claims in the sense of 35 U.S.C. 103, and all claims patentably distinguish thereover.

With respect to Collins et al, it is noted that in the Amendment filed August 3, 2001, the deficiencies of Collins et al was discussed at page 13, noting that such reference was also discussed at the interview. Applicants note that Collins et al discloses a side wall of the chamber through which a heat exchanging medium may be circulated, but Collins et al does not disclose an exchangeable or replaceable jacket held inside of the side wall nor that a heat exchanging medium

circulates through the interior of the jacket during etching. Thus, Collins et al is similar in disclosure to Goto et al with regard to the possibility of a heat exchanging medium circulating through the side wall of the etching chamber, but Collins et al does not disclose circulation a heat exchanging medium through an interior of an exchangeable jacket held inside of the side wall as disclosed and claimed in this application. Thus, it is apparent that Collins et al fails to disclose or teach the claimed features as set forth in the independent claims of this application in the sense of 35 U.S.C. 103, and for the same reasons, as pointed out above, with respect to the Shamouillian et al, this reference is also deficient and the combination fails to provide the claimed features as set forth in independent claims 21 and 26 and the dependent claims thereof. As such, all claims should be considered to patentably distinguish over Collins et al taken alone or in combination with Shamouillian et al in the sense of 35 U.S.C. 103.

With regard to the features of the dependent claims, applicants note that the cited art fails to disclose or teach the features of the dependent claims that the temperature of the surface of the exchangeable jacket is controlled to be a range of 0 to 50°C, that the coating layer is deposited with a thickness which is sufficient to prevent the surface of the replaceable jacket from being etched during etching of the

sample by the plasma and which does not peel off during etching of the sample. Moreover, the cited art fails to disclose that the thickness of the coating layer is about 200 microns, which feature is described at page 22, line 27, of the specification. Applicants submit that Shamouillian et al provides no disclosure or teaching of providing a thickness of a coating layer which is sufficient to prevent etching of the surface, noting that Shamouillian et al describes a thickness of coating of about 0.2 microns as described in examples 1, 2 and 3, whereas the thickness in the present invention is about 200 microns or about 1,000 times greater. As such, it is apparent that the cited art taken alone or in any combination fails to provide the claimed features as set forth in claims 21-31, and applicants submit that all claims patentably distinguish over the cited art in the sense of 35 U.S.C. 103 and should be considered allowable thereover.

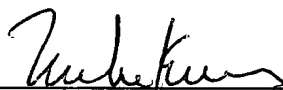
In view of the above amendments and remarks, applicants submit that all claims present in this application should now be in condition for allowance, and issuance of an action of a favorable nature is courteously solicited.

Applicants again request the Examiner to contact the undersigned attorney to schedule an interview, if considered necessary.

To the extent necessary, applicant's petition for an extension of time under 37 CFR 1.136. Please charge any

shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (503.34403CV4) and please credit any excess fees to such deposit account.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Page 21, please amend the paragraph beginning at line 12 as follows:

Firstly, the side wall [103] 102 will be explained by referring to Fig. 1. As already explained, the jacket 103 is held inside the side wall 102 of the processing chamber 100 and the temperature can be controlled by a heat exchanging medium.

IN THE CLAIMS:

Please amend the claims as follows:

(amended) A plasma etching apparatus for etching of a sample comprising:

21 an etching chamber having a side wall and [an exchangeable] a replaceable jacket which is held inside of said side wall so as to form a wall surface of [the] said etching chamber and which is removable from the side wall of said etching chamber, the sample being disposed in said etching chamber;

an evacuation system which evacuates said etching chamber by an evacuation system;

an etching gas supply which supplies an etching gas into said etching chamber;

a plasma generator which generates a plasma for performing etching of said sample in said etching chamber; and

a temperature controller which circulates a heat exchanging medium through the interior of said [exchangeable] replaceable jacket during etching so as to at least control a temperature of a surface of said [exchangeable] replaceable jacket which faces the plasma in said etching chamber within a predetermined range and enables depositing of a coating layer on the surface of said [exchangeable] replaceable jacket during etching which prevents the surface of said [exchangeable] replaceable jacket from being etched by said plasma.

22. (amended) A plasma etching apparatus according to claim 21, wherein said temperature controller circulates said heat exchanging medium so as to control the temperature of the surface of said [exchangeable] replaceable jacket in a range of 0 to 50°C.

23. (amended) A plasma etching apparatus according to claim 21, wherein the coating layer is deposited [up to a maximum] with a thickness which is sufficient to prevent the surface of said replaceable jacket from being etched during etching of the sample by said plasma and which does not peel off during etching of the sample.

24. (amended) A plasma etching apparatus according to claim 23, wherein the [maximum] thickness of the coating layer

[includes a thickness of] is about 2000 microns.

26. (amended) A plasma etching apparatus for etching a sample comprising:

an etching chamber having a side wall;

[an exchangeable] replaceable jacket for protecting the side wall of the etching chamber and which is removable from the side wall of the etching chamber;

a sample holder which holds a sample to be etched within the etching chamber;

means for generating a plasma and for etching the sample within the etching chamber; and

means for preventing etching of a surface of the [exchangeable] replaceable jacket which is held inside of the sidewall of the etching chamber and faces the plasma during etching of the sample by depositing a coating film on the surface of the [exchangeable] replaceable jacket facing the plasma during etching of the sample.

27. (amended) A plasma etching apparatus according to claim 26, wherein the means for preventing etching of the surface of the [exchangeable] replaceable jacket includes a temperature controller which circulates a heat exchanging member through the interior of said [exchangeable] replaceable jacket during etching of the sample so as to at least control a temperature of the

surface of said [exchangeable] replaceable jacket which faces the plasma in said etching chamber within a predetermined range.

28. (amended) A plasma etching apparatus according to claim 27, wherein said temperature controller circulates said heat exchanging medium so as to control the temperature of the surface of said [exchangeable] replaceable jacket in a range of 0 to 50°C.

[28] 29. (amended) A plasma etching apparatus according to claim 27, wherein the coating layer is deposited [up to a maximum] with a thickness which is sufficient to prevent the surface of said replaceable jacket from being etched during etching of the sample by said plasma and which does not peel off during etching of the sample.

[29] 30. (amended) A plasma etching apparatus according to claim [28] 29, wherein the [maximum] thickness of the coating layer [includes a thickness of] is about 200 microns.

[30] 31. A plasma etching apparatus according to claim 27, wherein the heat exchanging medium is a refrigerant.